SP 1004

AR. DATA AS OF APRIL 1963

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Lockheed Aircraft Corporation

ADVANCED DEVELOPMENT PROJECTS

BURBANK CALIFORNIA

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MODEL A12

TITLE AR DATA AS OF APRIL 1963

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REVISIONS

DATE	PAGES AFFECTED

ABSTRACT

Measurements at "S" band have been made on the full scale airplane mockup which has been updated by the installation of production blankets on the fuselage and nacelle chines, production teeth fillers in the wings, iron paint on the nacelles and fin stubs, production type inlet spikes, and moveable sections of the fins. A comparison of the cross section from this model and that from aircraft #122 shows that there is good agreement, within 1 to 2 db, between the two except at aft, where the model has more return than the airplane, and forward and 45° aft of broadside, where the airplane #122 has more return than the model. See curve #1.

A comparison of the return from the airplane #122 and the return from the pole model, 11FS, prior to updating, Curve #2, shows the same difference in levels as is found by a comparison of the return from the pole model 11FS, and the up to date version of the same model, 12FS, curve #3. It should be noted that the old pole model, 11FS, was treated on the left hand side only, the right hand side being all metal, although to the same shape and contours as the left hand side. It should also be noted that on the 11FS model, on the left hand side,the nacelle chine, wing and all but 10' of the fuselage chine had teeth filled with graphite loaded foam, covered with tapered T.D. paper. The 10' of the fuselage chine was changed to the blanket treatment to study the installation of the Type IV antenna. Because of the good agreement between the model and the airplane it is felt that any change to the model which improves it, could be incorporated into the airplane with equally good results.

In an effort to reduce the return at the low frequencies, 70 & 170 Mc, it was found that cines treated with 1" blankets of loaded honeycomb were better than the same chines with teeth and foam fillers. Curves 4, 5 and 6 are representative of these studies conducted on 1/8 scale barrel models, since no 70 or 170 Mc system was available for full scale testing. An

examination of these curves indicates that the blanket treatment is best at the low frequency end of the band, and it was on the basis of these and other tests that the decision was made to change from teeth to blankets on the chines.

A comparison of the return from the complete 1/8 scale model at low frequency has been made, see curve #7. On this curve the return from the 1/8 scale model with chines on both sides treated with teeth, foam and TD paper has been compared to the same model treated with the best available scaled simulation of the production blankets. Again the blankets are better.

Comparison of the full scale model and the 1/8 scale model both treated, to an all metal airplane of the same shape and size, indicate that the shape factor and the treatment have resulted in a great reduction in return over what could be expected if the airplane were all metal with no A.R. treatment. See curves 8 and 9.

A comparison has been made between the present A-12 (airplane No. 122) and the U-2 (airplane No. 352) as measured on the post. See curve #10.

AR DATA AS OF APRIL 1963

INTRODUCTION:

At the start of the AR program on the A12 it was felt that the side of the aircraft could be protected by the shape factor provided by the chines at "S" band and by teeth cut into the chine at 70 Mc. The teeth being selected because they would break up the long edge of the chine when scanned by 70 Mc radar at horizontal polarization. A look at the return from the all metal airplane indicates that the first assumption is probably correct. The return, while high in the neighborhood of 200 M^2, is still below the 1500-2000M^2 estimated by Michigan University for the B-47, an airplane of somewhat the same size. It is felt that the difference in level can be attributed to the shape factor. Since the treated models are all below the metal version it is felt that this reduction is due to the effectiveness of the treatment.

During the progress of our work it was found that 170 Mc was very important and that every effort should be made to reduce the return at this frequency, particularly since the goal was set at 1.0 M^2. It was found that a blanket treatment consisting of tapered loaded honeycomb 1" thick top and bottom with a tapered surface loading on the outside, laid over a substructure of bulkheads was better at the low frequency end than the teeth. This work was done on the 1/8 scale models since there was no 70 Mc range on which to test the full scale model. On the basis of these tests the final configuration for the chine on the fuselage and nacelle was changed from teeth to blankets.

TEST PROCEDURE:

Comparisons have been made of (1) the full scale treated airplane mockup vs. the production airplane, (2) tooth treatment vs. blanket treatment on the 1/8 scale barrel, and (3) the all metal vs. treated 1/8 scale and full scale airplane mockups.

Full scale measurements at "S" band with vertical polarization were made with the model mounted on the 50' hydraulic ram on the 1 mile range. Model 3FS-1, although run on 3 March 1960, is the latest all metal run and is considered valid. The remaining full scale runs were made within a nine month period as follows: 11FS-5 (19 July 1962), 122-108 (25 Oct. 1962), and 12FS-2 (11 April 1963). Eighth scale measurements at low frequency with horizontal polarization, were made with the models mounted on the inflated canvas bag on the $\frac{1}{2}$ mile range. The metal vs. treated runs, 5ES-1 vs. 9ES-23, were made 28 April 1962 and 16 November 1962 at 70 Mc and 81 Mc. The runs with the production treatment simulated, 9ES-23, were made 16 November 1962, at 81 Mc. The runs for comparison of the tooth and blanket treatment, 3ESB-59 and 5ESB-1 were made 26 June 1961.

TEST RESULTS:

Polar plots with the response of two comparable models shown on one plot are included in the Appendix. The areas in which the response of one model exceeds another have been colored to facilitate interpretation of the data. Also, the polar plot scales show both db and square meter values. The covering sheet with each polar plot gives the purpose for comparing the two models and brief descriptions of the models, including significant differences. In addition to the polar plots, the following summary of results and remarks is included.

A. PRODUCTION AIRPLANE (#122) VS. FULL SCALE MOCKUP (12FS-1) WITH PRODUCTION BLANKETS - Curve #1.

The two models have very similar cross-sections except aft, where mockup (12FS-1) is larger. At 180 deg. the mockup (12FS-1) is 3.2 meters and airplane #122 is 1.2 meters. At aspects other than 180 degrees the response varies from 0.7 to 1.6 meters for the mockup (12FS-1) and from 1.0 to 2.0 meters for airplane #122.

B. COMPARISON OF THE FULL SCALE MOCKUP (11FS-5) WITH TEETH IN CHINES ON LH SIDE, RH SIDE METAL VS. AIRPLANE #122 WITH PRODUCTION BLANKETS ON CHINES- Curve #2

The mockup (11FS-5) is smaller overall than the production airplane. The floor level is about 0.8 to 1.1 M^2 for the airplane #122 and 0.4 to 0.5 M^2 for the mockup (11FS-5). The average response from 290 to 360 deg. is about 1.0 M^2 for the airplane #122 and 0.6 M^2 for the mockup, (11FS-1). The avera e response from 180 to 250 is about 1.2 M^2 for airplane #122 and 0.4 M^2 for the mockup (11FS-5). At broadside the mockup has peaks of from 2.0-3.0 M^2 whereas the airplane #122 has peaks which are somewhat higher.

C. FULL SCALE MOCKUP WITH PRODUCTION TREATMENT ON BOTH SIDES (12FS-1) VS. FULL SCALE MOCKUP WITH PROTOTYPE TREATMENT ON LH SIDE AND RH SIDE ALL METAL (11FS-5). Curve #3

12FS-2 is larger overall than 11FS-5. The floor level is about 0.8 meters to 1.1 meters for 12FS-1 and 0.4 meters to 0.5 meters for 11FS-5. The average response from 290 to 360 deg. is about 1.0 meters for 12FS-1 and 0.6 meters for 11FS-5. The average response from 180 to 260 degrees is about 1.2 meters for 12FS-1 and 0.4 meters for 11FS-5.

D. EIGHTH SCALE BARREL SECTIONS WITH TEETH (3FSB-59) VS. BLANKET TREATMENT (5FSB-1). Curves 4,5,6.

The results of this comparison is shown in the following table in terms of the broadside response in square meters. Where LH and RH response differs the results have been averaged. End response should be disregarded since both ends of the model are covered with hair.

	FREQUENCY (Mc)		
	74	94	141
3ESB-59 (Teeth)	5.0	1.2	6.2
5ESB-1 (Blankets)	[illegible].8	0.7	4.0

E. COMPARISON OF 1/8 SCALE MODEL WITH BLANKET TREATMENT ON CHINES AND 1/8 SCALE MODEL WITH TEETH IN THE CHINES. Curve #7

As may be seen from curve #7 the return from the model having the blanket treatment on the chines is lower than the return from the model having the teeth filled with foam and TD in the chines. The three spikes from the blanket treated model at 170, 180 and 190 degrees are believed due t the use of the step loaded outlet plumes in place of the uniformly loaded plumes. The change to step loaded plumes was made in accordance with advice from J. Lawson.

F. ALL METAL AIRPLANE VS. TREATED AIRPLANE AT "S" BAND. Curve #8

The full scale comparison has been made between the full scale mockup all metal (3FS-1) and the full scale mockup up dated to the latest configuration. The floor level is about .6 to 1.0 meters treated and about 6.0 to 10.0 meters untreated. The general level in the forward aspect from 290 degrees to 70 degrees is about 1.0 meters treated and 6.0 untreated. The average level in the aft aspect from 150 to 210 degrees is bout 1.2 meters treated and about 20.0 meters untreated. The treated broadside level is generally about 3.0-6.0 meters. The untreated broadside is about 6.5 meters average, with peaks of 40.0 to 80.0 meters.

G. ALL METAL AIRPLANE VS. TREATED AIRPLANE AT 70 Mc. Curve #5.

A comparison has been made at 70 Mc between the 1/8 scale metal version and a 1/8 scale model treated with chine blankets and wing teeth, plastic fins, loaded inlet spikes, etc., the frontal aspect from 310 to 50 degrees is about 3.0 to 6.0 meters for the treated version and

12.0 to 190 meters for the untreated. The return from the aft aspect from 100 to 260 degrees averages 3.0 meters with 3 peaks to 12.0 meters for the treated version and 40 meters with peaks to 150 meters for the all metal model. Broadside levels from 265 to 290 degrees range between 6 and 30 meters for the treated model and from 60 to 190 meters for the all metal version.

CURVE #1

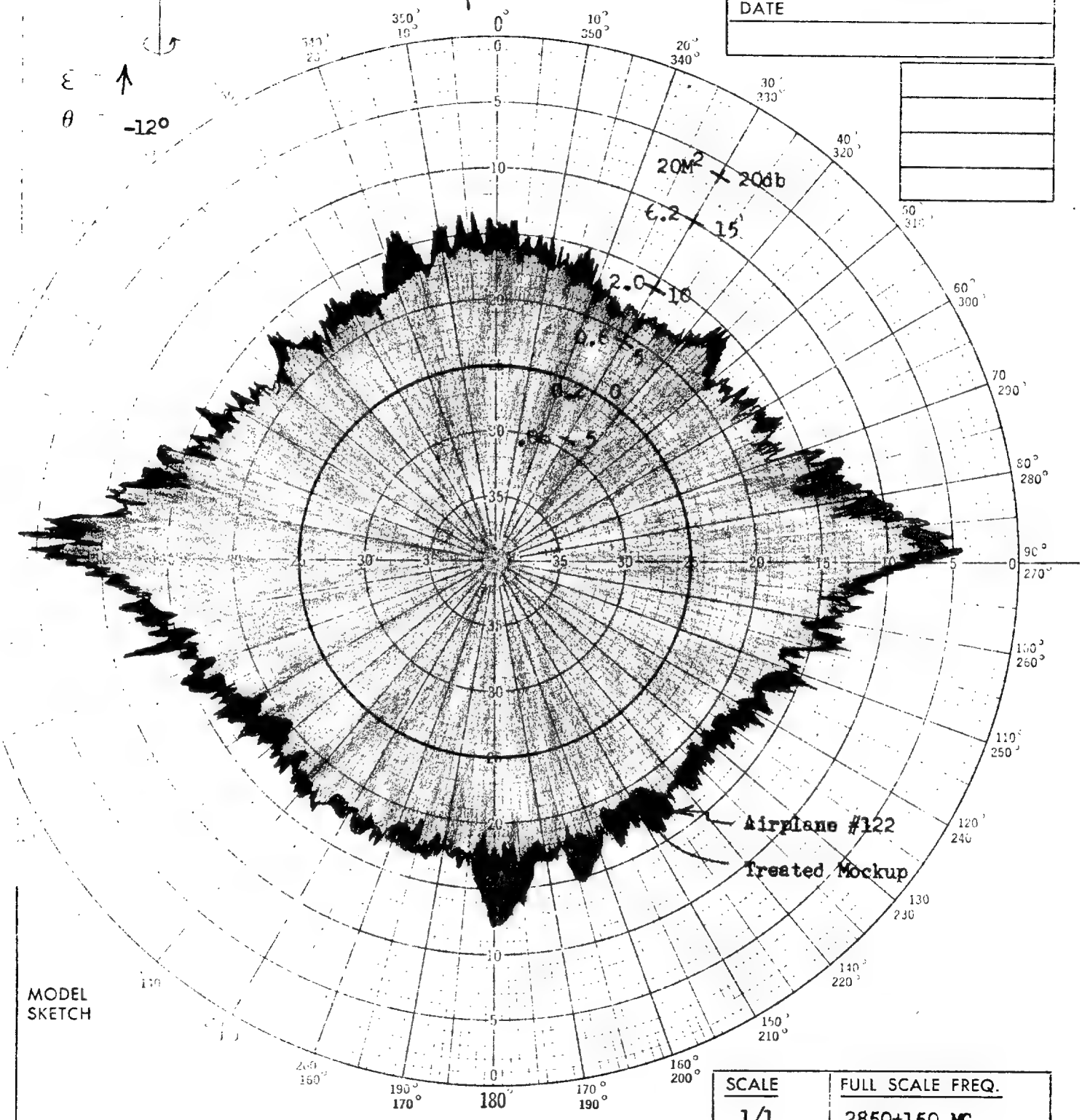
122-108 vs. 12FS-1

PURPOSE: Comparison of airplane #122 with production treatment, and airplane mockup with production treatment, 12FS-1.

DESCR.	122-108 (Prod. airplane)	12FS-1 - Chine Blankets
FINS	Prototype moveable sections. Fe paint on fixed sections in production pattern.	Same as 122-108.
WINGS	Production treatment.	Same as 122-108.
FUSELAGE CHINE	Production blankets.	Same as 122-108.
NACELLE CHINE	Production blankets.	Same as 122-108.
INLETS	Pre-production spike and Fe paint.	Same as 122-108.
NACELLE FWD. EXT.	Fe paint in prod. pattern.	Same as 122-108.
NACELLE AFT EXT.	No treatment.	Same as 122-108 except wing is 7" higher on nacelle with simulated nacelle-to-wing fillets on lower surface.
OUTLETS	Hair plumes.	Hair plumes.
MOUNTING	Right side up with WL 100 10' above top of ram. Mount inclosed in metal cylinder 5' dia. and covered with hair.	Right side up with WL 100, 10' above top of ram. Mount inclosed in metal cylinder 5' dia. and covered with hair same as #122.

EQUIPMENT NOTES	
SOURCE:	R. F. ATTEN.:
MISC.:	

MODEL NO.	Noted
TEST FREQ.	2850±150 MC
$\bar{\varepsilon}$ //	TO AXIS OF ROTATION ~~TO PLANE OF SAMPLE~~
RANGE	1 mile
DATE	



MODEL SKETCH

SCALE	FULL SCALE FREQ.
1/1	2850±150 MC

BASIC MODEL:

DETAILS: Green: Airplane #122 with production treatment
Red: Mockup airplane with production treatment
Dark Green: Areas where #122 is larger.

CURVE #2

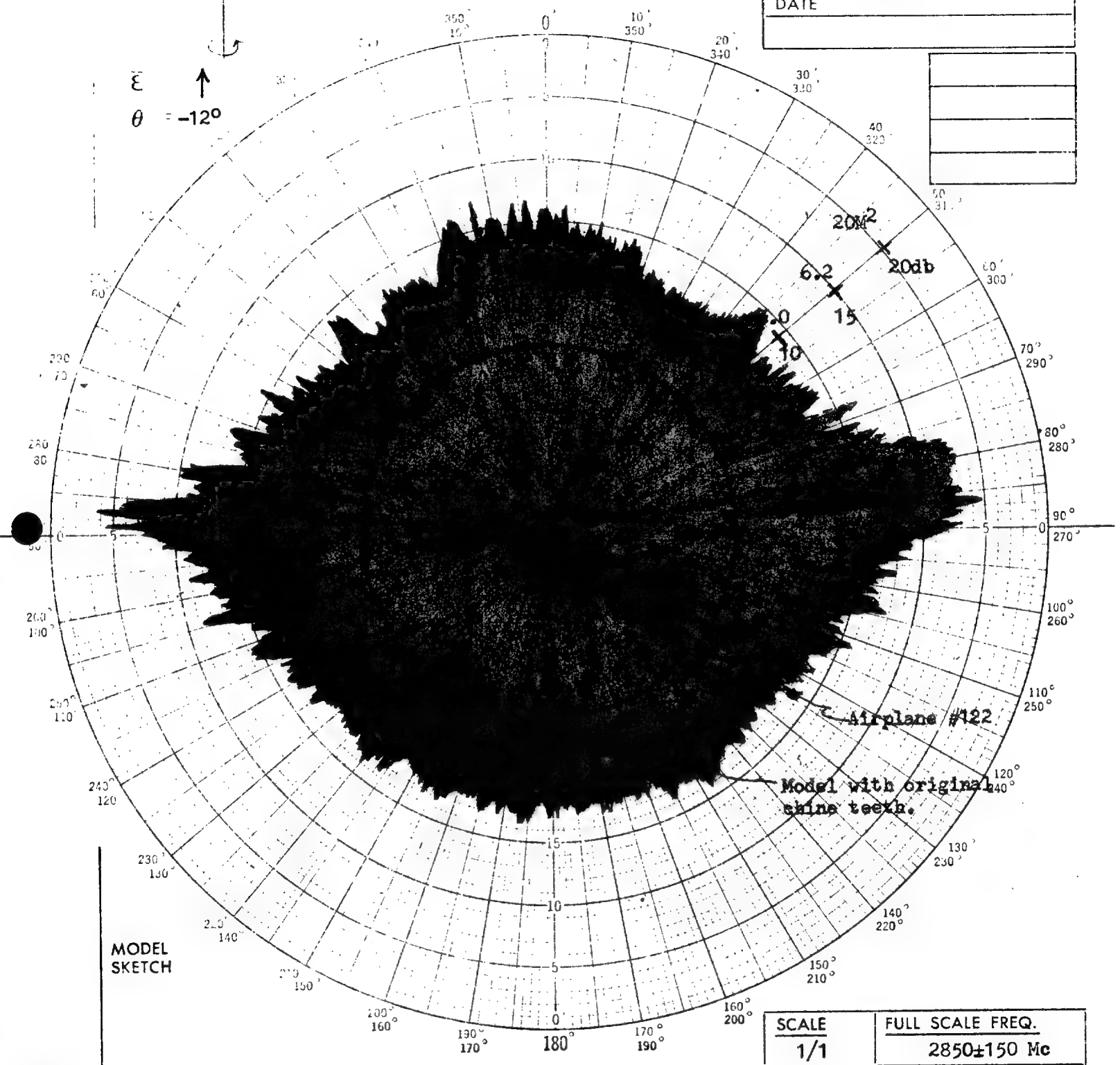
122-108 vs. 11FS-5

PURPOSE: Comparison of production airplane #122 and airplane mockup with LH side treated and RH side all metal, 11FS-5.

DESCR.	122-108 (Prod. Airplane)	11FS-5 (LH side treated).
FINS	Prototype moveable sections. Fe paint on fixed sections in production pattern.	Same as 122-108.
WINGS	Production teeth.	LH: Teeth with foam & TD filler. RH: Metal.
FUSELAGE CHINE	Production blankets.	LH: Teeth with foam & TD fillers except 10' section which has bulkheads & blanket treatment. RH: Metal.
NACELLE CHINE	Production blankets.	LH: Teeth with foam and TD fillers. RH: Metal.
INLETS	Pre-production spike and Fe paint.	Same as 122-108.
NACELLE FWD.EXT.	Fe paint in production pattern.	LH: Hair in place of Fe paint. RH: Metal.
NACELLE AFT EXT.	Metal.	Large fillet into wing.
OUTLETS	Hair plumes.	Hair plumes.
MOUNTING	Right side up with WL 100 10' above top of ram. mount inclosed in metal cylinder 5' dia. and covered with hair.	Right side up with WL 100, 10' above top of ram. Mount inclosed in metal cylinder 5' dia. and covered with hair same as #122.

EQUIPMENT NOTES	
SOURCE:	R. F. ATTEN.:
MISC.:	

MODEL NO.	11FS-5 ---
TEST FREQ.	2850±150 Mc
ε ⊥	TO AXIS OF ROTATION ~~TO PLANE OF SYMM~~
RANGE	1 Mile
DATE	



MODEL SKETCH

SCALE	FULL SCALE FREQ.
1/1	2850±150 Mc

BASIC MODEL:

DETAILS:

RED: 122-108 Airplane 122 with production treatment.
GREEN: 11FS-5 Full scale model with LH side treated with original chine teeth.

Polar Chart No. 12/D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA

CURVE #3

12FS-1 vs. 11FS-5

PURPOSE: Comparison of airplane mockup with production treatment, on both sides and airplane mockup with LH side with fuselage chine teeth and prototype treatment and RH side metal.

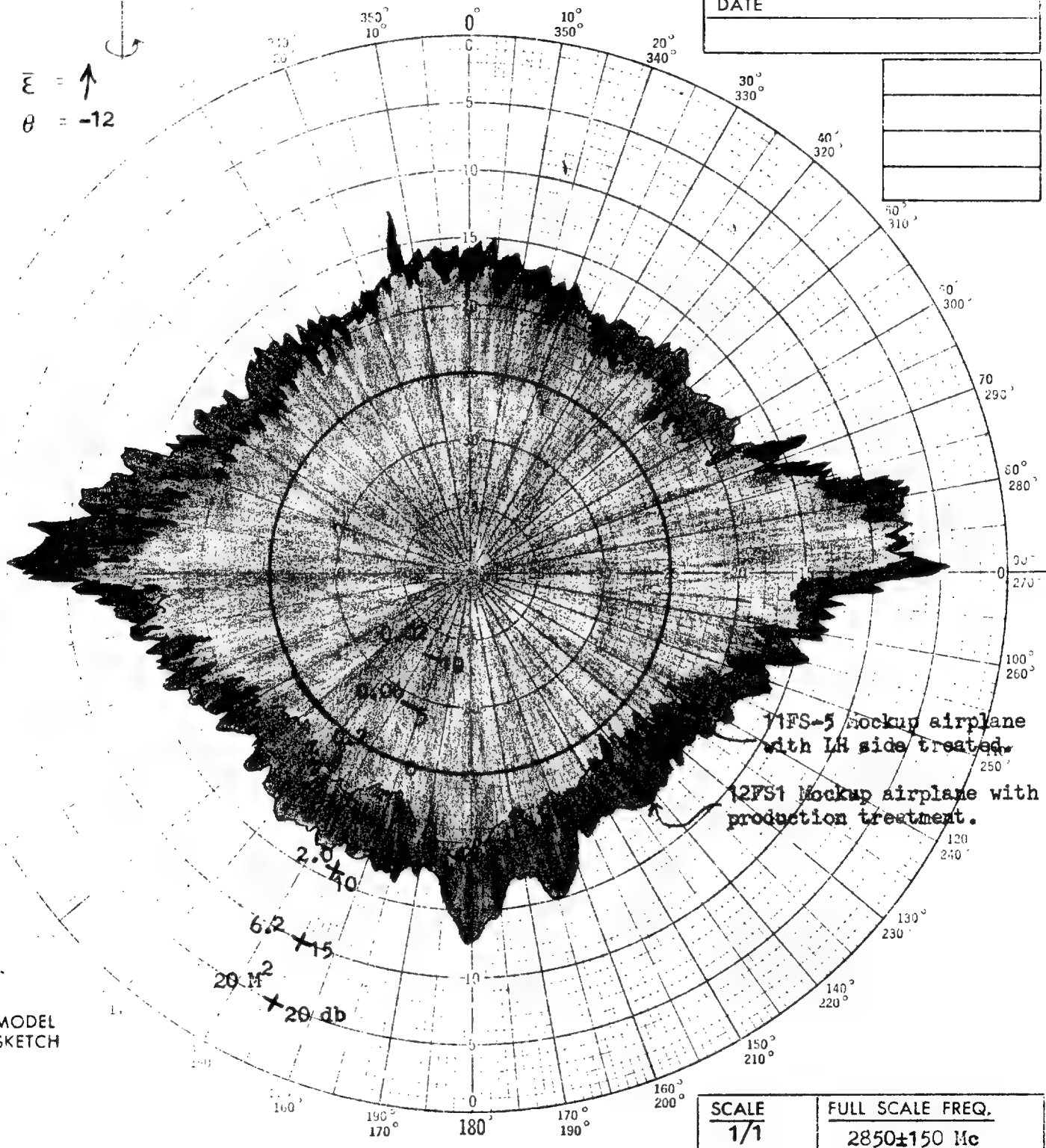
DESCR.	12FS-1 Chine Blankets	11FS-5 Chine teeth
FINS	Prototype moveable section. Fe paint in production pattern on fixed section.	Same as 12FS-1.
WINGS	Teeth with production fillers.	LH: Teeth with foam and TD filler. RH: Metal.
FUSELAGE CHINE.	Production blankets.	LH: Teeth with foam and TD fillers except for 10' which has blanket treatment, on bulkheads. RH: Metal.
NACELLE CHINE	Production blanket.	LH: Teeth with foam and TD fillers. RH: Metal.
INLETS	Pre-production spike and new FE paint.	Pre-production spike and old Fe paint.
NACELLE FWD.EXT.	Production Fe paint.	LH: Fwd. hair treatment in place of Fe paint. RH: Metal.
NACELLE AFT EXT.	Large fillet into wing.	Large fillet into wing.
OUTLET	Hair plumes.	Hair plumes.
MOUNTING	Right side up with WL 100 10' above top of ram. Mount inclosed in metal cylinder 5' dia. and covered with hair.	Right side up with WL100, 10' above top of ram. Mount inclosed in metal cylinder 5' dia. and covered with hair same as #122.

EQUIPMENT NOTES	
SOURCE:	R. F. ATTEN.:
MISC.:	

MODEL NO.	Noted
TEST FREQ.	2850±150 Mc
$\bar{\varepsilon}$ ||	TO AXIS OF ROTATION ~~TO PLANE OF SAMPLE~~
RANGE	1 Mile
DATE	

$\bar{\varepsilon}$ = ↑

θ = -12



MODEL SKETCH

SCALE	FULL SCALE FREQ.
1/1	2850±150 Mc

BASIC MODEL:

DETAILS: Red: 12FS-1 Mockup airplane with prod. treatment.
Green: 11FS-5 Mockup airplane with prototype treatment on LH side, metal on Rh side.

CURVE #4, 5 & 6.

3ESB-59 vs. 5ESB-1

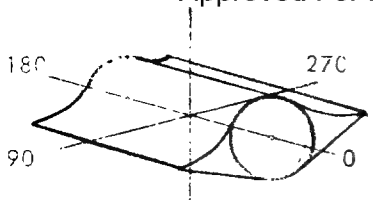
PURPOSE: Comparison of tooth treatment for chines and blanket treatment for chines on 1/8 scale barrel sections of fuselage.

DESCRIPTION	3ESB-59	5ESB-1
CHINES	Teeth with 1" thick (full scale) step loaded honeycomb and TD fillers on top and bottom.	Bulkheads with 1" thick (full scale) step loaded honeycomb and TD blankets on top and bottom.
ENDS	Both ends of model have hair termination.	Same as 3ESB-59

3-59

EQUIPMENT NOTES	
SOURCE:	R. F. ATTEN.:
MISC.:	

MODEL NO.	5ESB-1 ---
TEST FREQ.	590 Mc
$\bar{\varepsilon} \perp$	TO AXIS OF ~~ROTATION~~ / ~~TO PLANE OF SYMM.~~
RANGE	½ Mile
DATE	



$\bar{\varepsilon}$ = →

θ = -10°

End of model hair covered
Disregard end response

Area of Interest

Barrel with blanket

Barrel with teeth.

1.9 × 5

6.0

19 × 5

60 ×10

190 ×15

20db

600M2

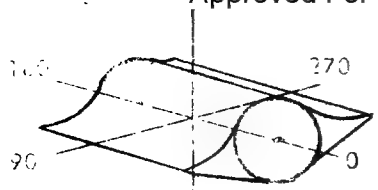
MODEL SKETCH

SCALE	FULL SCALE FREQ.
1/8	74 Mc

BASIC MODEL:

DETAILS: **Red:** 3ESB-59 Barrel with teeth.
Green: 5ESB-1 Barrel with blankets.

 E-59



EQUIPMENT NOTES	
SOURCE:	R. F. ATTEN.:
MISC.:	

MODEL NO.	5ESB-1 ---
TEST FREQ.	756 Mc
$\bar{E} \perp$	TO AXIS OF ROTATION ~~TO PLANE OF FIGURE~~
RANGE	½ Mile
DATE	

$\bar{E}$ →

θ = -10°

End of model hair covered - disregard end response

Area of interest

Barrel with teeth

Barrel with blankets.

17 + 5

54 + 10

170 + 15db

MODEL SKETCH

SCALE	FULL SCALE FREQ.
1/8	94 Mc

BASIC MODEL:

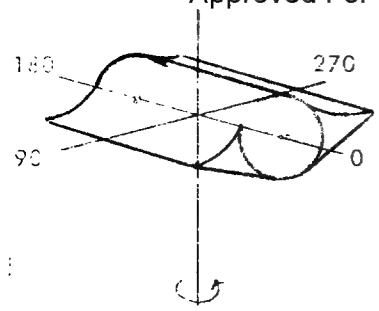
DETAILS: Red: 3ESB-59 Barrel with teeth.
Green: 5ESB-1 Barrel with blankets.

Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA

3ESB-59

EQUIPMENT NOTES	
SOURCE:	R. F. ATTEN.:
MISC.:	

MODEL NO.	5ESB-1
TEST FREQ.	1370±150 Mc
$\bar{\varepsilon}$	⊥ TO AXIS OF ROTATION ~~TO PLANE OF SAMPLE~~
RANGE	½ Mile
DATE	



$\bar{\varepsilon}$ →

θ = -10°

End of model hair covered- disregard end response.

Barrel with teeth

Barrel with blankets

Area of interest

9.32

1.6

3.2+5

10.0+10

32+15

20db

100+2

MODEL SKETCH

SCALE	FULL SCALE FREQ.
1/8	171 Mc

BASIC MODEL:

DETAILS: Red: 3ESB-5 Barrel with teeth.
Green: 5ESB-1 Barrel with blankets.

Polar Chart No. 1270
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GA., U.S.A.

CURVE #7

9ES-23 vs. 5ES-2

PURPOSE: Comparison of 1/8 scale airplane with best available scaled simulation of production blankets (9ES-23) and 1/8 scale airplane having teeth in chines (5ES-2).

DESCRIPTION	9ES-23	5ES-2
FINS	Plastic moveable section. Metal fixed section.	Plastic moveable section. Metal fixed section.
WINGS	Teeth with foam and TD fillers.	Same as 9ES-23.
FUSELAGE CHINE	Bulkheads with honeycomb and TD blankets.	Teeth with foam and TD fillers.
NACELLE CHINES	Bulkheads with honeycomb and TD blankets.	Teeth with foam and TD fillers.
INLETS	Honeycomb and TD in production shapes around production shaped spike actuator.	Foam loading around small spike actuator.
NACELLE FWD. EXT.	Metal.	Foam and TD filler.
NACELLE AFT EXT.	Metal.	Foam in outboard fillets.
OUTLETS	Step loaded foam plumes.	Uniformly loaded foam plumes.

Mod. 9ES-23 — 650±150 Mc

EQUIPMENT NOTES	
SOURCE:	R. F. ATTEN.:
MISC.:	

MODEL NO. 5ES-2 ---

TEST FREQ. 560 Mc

$\bar{\varepsilon} \perp$ TO AXIS OF ROTATION ~~TO PLANE OF SAMPLE~~

RANGE ½ Mile

DATE

$\bar{\varepsilon}$ →

θ -10°

180 270 90 0

180M² + 15db

68 + 10

18 + 5

5.8 0

Model with scaled chine blankets.

Model with original chine teeth.

MODEL SKETCH

SCALE	FULL SCALE FREQ.
1/8	81 Mc & 70 Mc

BASIC MODEL:

DETAILS: Green: 9ES-23 Model with scaled chine blankets.
Red: 5ES-2 Model with original chine teeth.

Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA

CURVE #8

3FS-1 vs. 11FS-5

PURPOSE: Comparison of metal airplane mockup and airplane mockup with LH side treated and RH side metal.

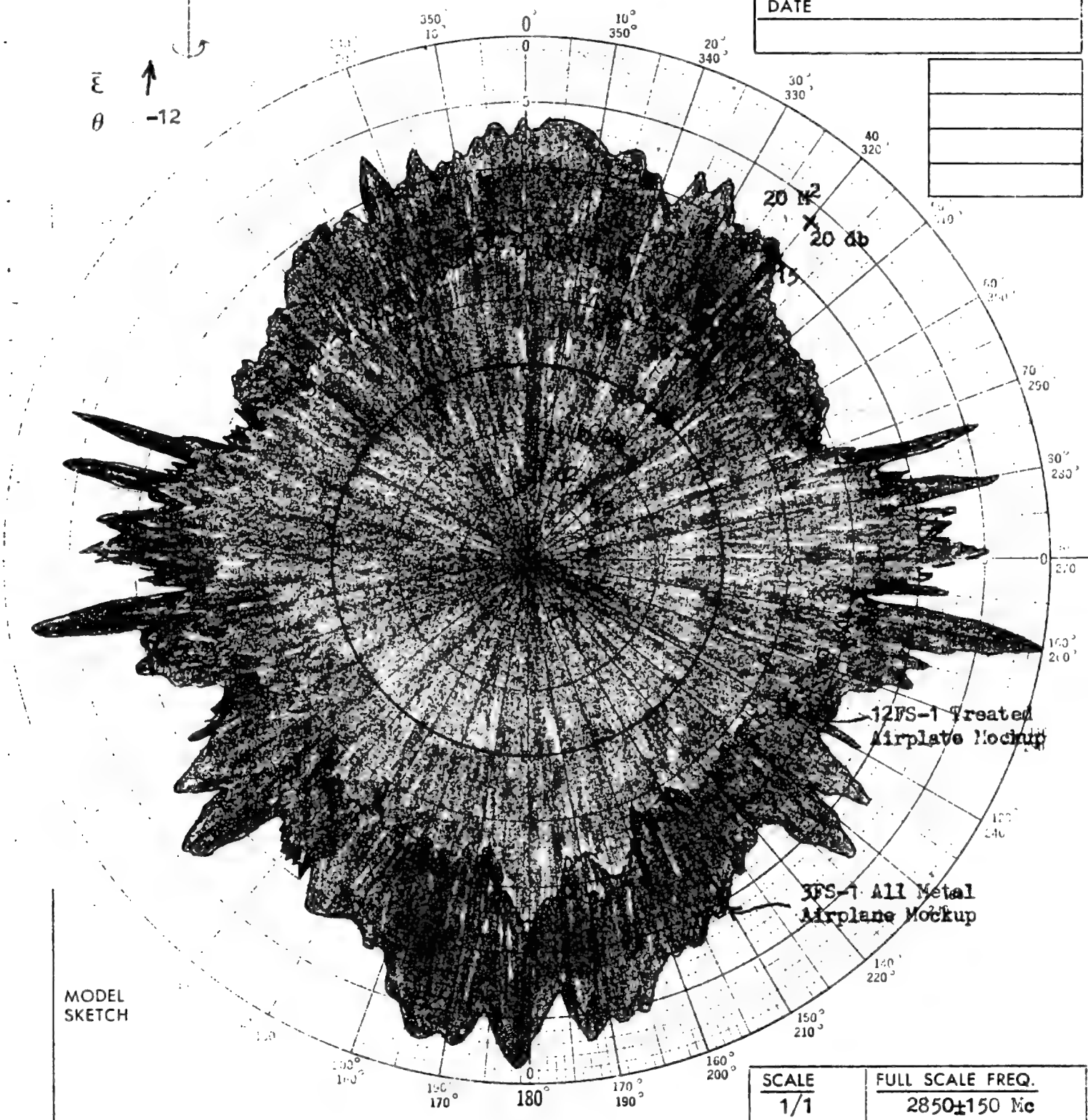
DESCRIPTION	3FS-1 (All metal)	11FS-5 (Chine teeth)
FINS	Metal	Prototype moveable sections. Fe paint on fixed sections in production pattern.
WINGS	Metal	LH: Teeth with foam and TD fillers. RH: Metal.
FUSELAGE CHINE	Metal	LH: Teeth with foam & TD fillers except for 10' which has bulkhead & blanket treatment. RH: Metal.
NACELLE CHINE	Metal	LH:Teeth with foam & TD. fillers. RH: Metal.
INLETS	Metal	Pre-production spike and Fe paint.
NACELLE FWD. EXT.	Metal	LH: Hair treatment in place of Fe paint. RH; Metal.
NACELLE AFT EXT.	Large fillet into wing.	Same as 3FS-1.
OUTLETS	Open.	Hair plumes.

EQUIPMENT NOTES	
SOURCE:	R. F. ATTEN.:
MISC.:	

MODEL NO.	Noted
TEST FREQ.	2850±150 Mc
$\bar{E}$ //	TO AXIS OF ROTATION ~~TO PLANE OF SAMPLE~~
RANGE	1 Mile
DATE	

$\bar{E}$ ↑

θ −12



MODEL SKETCH

SCALE	FULL SCALE FREQ.
1/1	2850±150 Mc

BASIC MODEL:

DETAILS: Red: 3FS-1 All metal airplane mockup.
- Green: 12FS-1 Airplane mockup with production treatment.

CURVE #9

5ES-1 vs. 9ES-23

PURPOSE: Comparison of all metal model 5ES-1 and model with scaled simulation of production blanket treatment, 9ES-23.

DESCRIPTION	5ES-1 (All metal)	9ES-23 (Treated)
FINS	Metal.	Plastic moveable section. Metal fixed section.
WINGS	Metal.	Teeth with foam and TD fillers.
FUSELAGE CHINES	Metal.	Bulkheads with honeycomb and TD blankets.
NACELLE CHINES	Metal.	Bulkheads with honeycomb and TD blankets.
INLETS	Metal.	Honeycomb and TD in spike.
NACELLE FWD. EXT.	Metal.	Metal.
NACELLE AFT EXT.	Metal.	Metal.
OUTLETS	Open.	Step loaded foam plumes.

...-1 - 560 Mc

EQUIPMENT NOTES	
SOURCE:	R. F. ATTEN.:
MISC.:	

MODEL NO.	9ES-23---
TEST FREQ.	650 ±150 Mc.
$\bar{E} \perp$	TO AXIS OF ROTATION ~~TO PLANE OF SAMPLE~~
RANGE	½ Mile
DATE	

$\bar{E}$ →

$\theta = 10^{o}$

$580\lambda^2$ + 20 db

180 ± 15

All metal model.

Model with scaled production treatment.

MODEL SKETCH

SCALE	FULL SCALE FREQ.
1/8	70 Mc & 81 Mc

BASIC MODEL:

DETAILS: RED: 5ES-1 All metal model
GREEN: 9ES-23 - Model with scaled production treatment.

Polar Chart No. 127D
SCIENTIFIC-ATLANTA, INC.
ATLANTA, GEORGIA

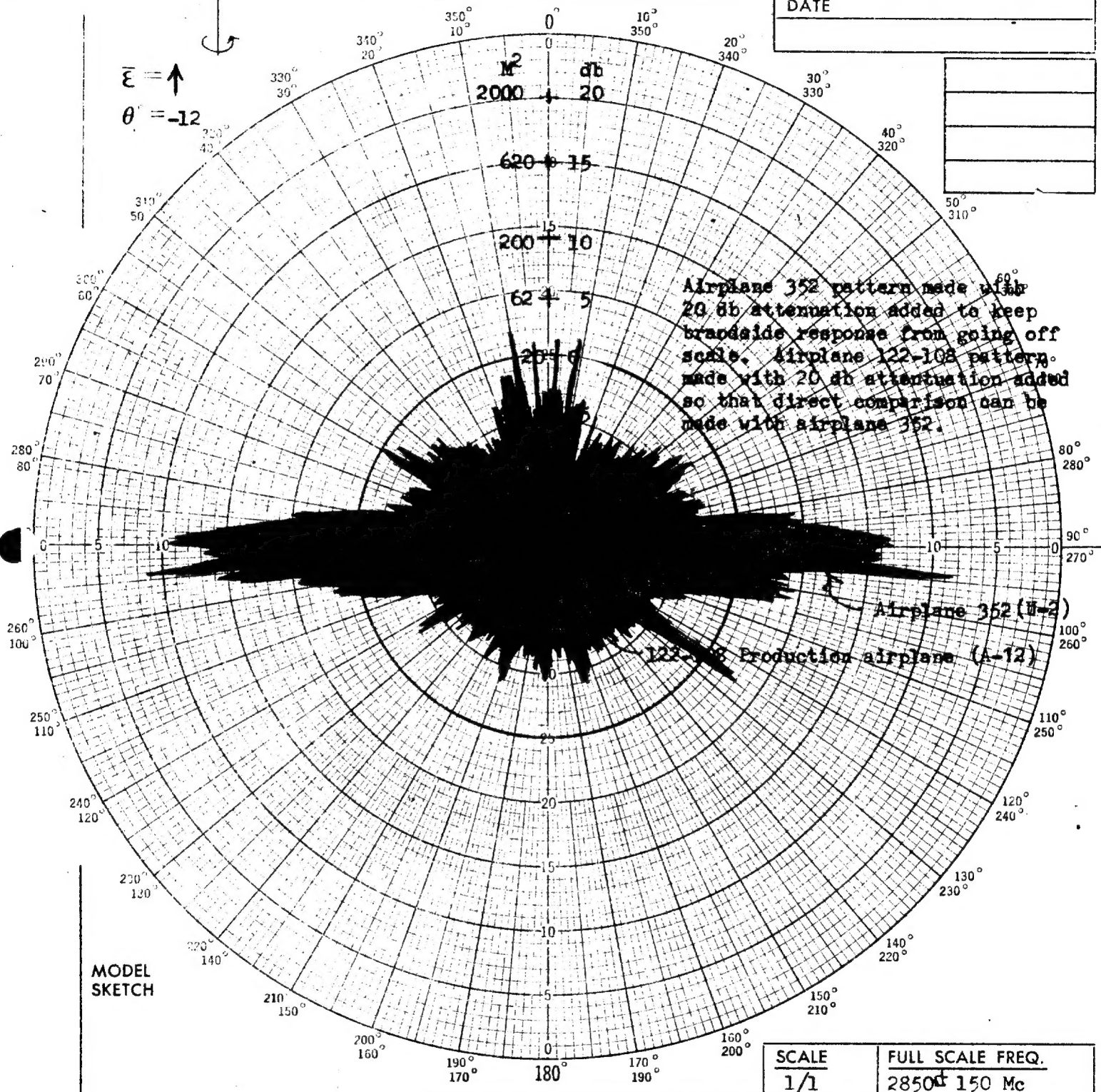
122-108(A-12) vs. 352-3(U-2)

PURPOSE Comparison of airplane 122 (A-12) with production treatment and airplane 352 (U-2).

DESCR.	122-108(Prod. airplane A-12)	352-3 (All metal U-2)
FINS	Prototype moveable sections. Fe paint on fixed sections in production pattern.	Metal.
WINGS	Production treatment.	Metal.
FUSELAGE CHINE	Production blankets.	No chine - fuselage all metal.
NACELLE CHINE	Production blankets.	No nacelle.
INLETS	Pre-production spike and Fe paint.	Forward engine face and oil cooler radiators simulated by metal plates at FS 389 and FS 460 respectively.
NACELLE FWD.EXT.	Fe paint in prod. pattern.	No nacelle.
NACELLE AFT EXT.	No treatment.	No nacelle.
OUTLETS	Hair plumes.	Tail pipe and aft end of engine simulated.
MOUNTING	Right side up with WL 100 10' above top of ram. Mount inclosed in metal cylinder 5' dia. and covered with hair.	Right side up with mount inside fuselage.

EQUIPMENT NOTES	
SOURCE:	R. F. ATTEN.:
MISC.:	

MODEL NO.	Noted
TEST FREQ.	2850 ± 150 Mc.
$\bar{\varepsilon}$ ∥	TO AXIS OF ROTATION ~~TO PLANE OF SAMPLE~~
RANGE	1 Mile
DATE	



MODEL SKETCH

SCALE	FULL SCALE FREQ.
1/1	2850 ± 150 Mc

BASIC MODEL:

DETAILS: Red: Airplane 352
Green: 122-108 Production Airplane

Polar Chart No. 127D
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ATLANTA, GEORGIA